

The Canadian Entomologist

Vol. LII.

LONDON, APRIL, 1920.

No. 4

POPULAR AND PRACTICAL ENTOMOLOGY.

FAMILIAR HAUNTS.

BY FRANCIS J. A. MORRIS,
Peterborough, Ont.

Finding myself in Port Hope on the last day of June, 1918, I took occasion and my hobby by the forelock, and, in the company of my fellow-collector of old days, headed north for some woods just west of our favorite "Rocky Mountains." Here lies as pretty a tract as can be found in all Northumberland, with extensive bush to west and north and embracing roughly a square mile of ground. It forms a kind of table land of middle elevation between the Port Hope plains and the long wooded ridge that stands out against the skyline as you look north from the campus of Trinity College School.

Deserting our usual route for a somewhat more westerly course, we held up the Bewdley gravel-road past the first line north of Dale; here a rough road, closed off by a gate, runs east to a gravel pit. Just beyond this we turned north to examine a grove of mixed hardwood and pine where the axe had been busy. In spite of its being bright and hot, we could find nothing at work about the cord wood and stumps, nor even about a few recently felled maples lying crushed and shattered as saw or axe had left them.

It was hot work and dry, stumbling about the clearing over rough, hard-baked ground, and even my hobby—old war-horse that it was—showed signs of flagging. My companion dismounted altogether and soon found a ready-made cozy corner in the grass beneath a shady evergreen. Just before giving up the search myself, and already at the point of indifference, I happened to spy a trunk of white pine lying in the very centre of the clearing, where the sun poured down relentless rays.

As I approached it I saw a small, dark longicorn settle on the butt; this proved to be *Acmaeops proteus*, a beetle sufficiently uncommon in our neighborhood to warrant capture. Then while skirting the trunk, I noticed near the middle and on the upper side, clinging to the rough bark, a blackish longicorn with yellow marks on the elytra; at first glance I took it for *Clytanthus ruricola* and wondered what it was doing on pine, for I have never captured this insect except on foliage or in blossoms, where it is a voracious pollen-feeder. A second look showed me at once that the beetle was new to me; it was much shorter than *C. ruricola* and had a peculiarly truncate appearance. Moreover, the marks and lines of yellow pubescence on the wing-covers formed a different pattern from that of *Clytanthus*, being unlike both in shape and in disposition. Both insects are nearly black, "piceous" rather than jet; the antennæ in both are fairly short, somewhat darker in the stranger, whose thorax, also, is shorter and less elevated; the forward margin of the thorax in both is fringed with

yellow, but in the stranger the hind margin is also yellow; both have a yellow scutellum and a small patch of yellow at the base of each wing-cover; but the familiar long "L"-shaped mark of yellow behind this in *Clytanthus ruricola* is replaced in the stranger by a simple diagonal line slightly curved, and behind this is a transverse band of yellow continued across the sutural line over both elytra. The thighs of both insects are clavate, but in *C. ruricola*, only, are the hind thighs and tibiae elongate; in the stranger they are even shorter than in *Xylotrechus* and more strongly clavate. The insect has been identified as *Clytus marginicollis* and is, I believe, a great rarity in Ontario; at any rate, it is a new species and a new genus in my collection, filling an important gap in the group of *Clytini*.

It was quite enough for me that I had been collecting Longicorns for 15 years and had never seen this insect before. There lay my friend, inert as the weariest of mere wayfarers without an object could possibly be on a sizzling hot day; but my capture filled me at once brimful of activity and fervour. I spent a good half hour peering about that pine trunk and its limbs in the hope of another capture, and even when we decided to move on, I was still straining at the leash, eager to beat the next cover for game.

Just west of Hume's old home-farm is a sloping hillside covered with small trees and intersected by streams of cress-mantled spring water. At one of these I stooped to drink, for a long draught is worth far more to the pedestrian on a hot day than solid food of any kind. While thus refreshing myself I observed on the further bank a recent windfall of basswood; "windfall," I call it, but it might almost have been called a "water-fall;" for its roots had been undermined by a freshet, and a sudden flaw of wind taking it by surprise had overturned it. It was while struggling up the further bank, with one eye glued on the basswood, that I caught sight of a specimen of *Neoclytus erythrocephalus* running along a limb on the off-side of the fallen tree. As soon as I got to the top of the bank I hurried round the head of the tree to where I had seen the insect. There it was again! but unfortunately hurrying down towards the axil of a large limb impossible of approach owing to the thicket of grapevine into whose midst the tree had crashed. However, I kept the insect in view, and presently to my relief it faced about and came up towards the smaller branches at the top of the bank. And here after a little anxious stalking, I made my capture. Next moment I saw the dead image of it, very much alive, hurrying along the limb again; had it escaped from the cyanide jar? No, there it was safe in the glass bottle. Again I stalked my quarry, and again I made my capture; and presently, behold a third, running along the trunk. Where the insects came from I could not discover, but it seemed certain that they arrived by aeroplane and became visible only on alighting. Some time after, I spied a fourth; but it managed to elude the eager clutch of my fingers, as it had the jaws of my forceps and the yawning gape of my net; no sooner did it take to flight than it vanished into thin air.

In its descent the tree had broken some shoots of sumach at the top of the bank; close to these, but nearly under the basswood and in neutral territory on the ground, I captured a beautifully marked grey-brown Lamiinid which proved to be *Lepturges symmetricus*; some days later, my friend took a second specimen

on the basswood, so perhaps the latter has the better claim to have bred out this insect; on the broken sumach, I captured a specimen of *Lepturges querci*, and on a bruised branch of the basswood, just before leaving, I took *Eupogonius subarmatus* and *Leptostylus macula*; this last I have taken 3 times on basswood and rather more often on sumach; it is very fond of attaching itself to a branch—usually of small girth—that has been bruised or broken, and there I presume it oviposits. A few years ago my friend captured 8 or 10 of these insects and 3 or 4 of *Goes oculatus* in a few sumachs on the south edge of what we know locally as the North Wood. The insects were nearly all on branches partly killed; and the whole colony of sumachs where they were taken is now dead, I believe almost entirely as the result of Lamiinid larvæ; large numbers of *Hyperplatys aspersus* and *Liopus alpha* riddling the small branches, while *Leptostylus* and *Goes* tunnel the thicker stems. The life of a sumach thicket, all observers will readily admit, is remarkably short, shorter than that of an elder thicket, and in nearly all cases the destruction is caused by insect borers. These light, brittle woods with a pithy core being, it would seem, peculiarly prone. In the particular section I am speaking of, equally deadly has been the work of the weevil, *Cryptorhynchus lapathi*, among the willows bordering the small streams.

We were now at the edge of our chosen trysting place, one of the prettiest spots in all these northward tramps of ours. The time was ripe for lunch and a rest on soft mossy turf, within sight and sound of birch and pine and running water; a land of sunny upland pastures, of sumach thickets and shaded streams, of rich, if somewhat swampy hardwoods. To the north ran a long windbreak of pines that climbed suddenly up to the skyline over the shoulder of a great bare hill, outpost of a whole host of others more distant, from a few of which one sometimes caught a far-off glimpse both of Rice Lake and of Lake Ontario at a single halt. It was among the branches of the last pine in sight on the slope that I had got my first close view of a Mourning Dove one hot September afternoon. On the edge of that sloping wood to the west, with its intersecting runnels of cold spring water, we seldom failed to mark, in May or early June, the gorgeous plumage of the Scarlet Tanager and hear its pleasing notes; under its pines abound morels and the Gyromitra or Curly Cap, a rich mahogany-brown cousin of the Morel; once or twice in its sequestered dells we had been held spell-bound by the exquisite grace of the Yellow Ladies' Slipper, and once at least by the deathly still, pale beauty, appalling in its tranquillity, of the Destroying Angel (*Amanita phalloides*). Just north of us runs eastward a path leading to the Bethel road; and here on its south margin, beyond a spongy bit of marsh where spears of the Adder's Tongue fern thrust up, if you look about you carefully, you will make the same happy discovery that I made many years ago, the double surprise of a whole row of blue beech, that somewhat uncommon kinsman of the Ironwood or Hop-hornbeam, and beyond them, hidden from the path by some cedars, a flourishing colony of the Hay-scented Fern (*Dicksonia pilosiuscula*) with its beautiful spreading fountain of finely cut green fronds; the only station I know for this species within 10 miles of Port Hope. A few yards south of where we were lunching, under a fringe of evergreen, while gathering morels one day in May, I flushed a partridge from its nest of 13 eggs. The whole place teemed with happy memories! As the

eye brooded over the scene, the spirits of a thousand vanished hours started from every nook and corner of the land.

After lunch we moved south through the narrow strip of woodland. The first section of this was mixed wood, and many trees were lying about in the unsightly confusion known as a "slash;" some of them had been felled two or three years before, others had fallen soon after, victims of the first gale that smote their unprotected flanks. It was hot work and slippery making one's way from point to point, and only a succession of lucky finds kept one going at all.

My first strike was where a butternut and a maple had fallen together; on a limb and some boughs of the former I took 3 or 4 more specimens of *Neoclytus erythrocephalus* racing madly along in the sunshine; and on the under side of the maple trunk,—it was a lean-to—I captured one specimen of *Urographis fasciatus* and one of *Goes oculatus*; on a near-by elm I took several *Physocnemum brevilineum* and 2 specimens of *Saperda tridentata*, and finally on a basswood 2 or 3 seasons dead, a specimen of *Saperda vestita* and 3 of *Hoplosia nubila*, the latter evidently just emerged from a dead and broken bit of limb half way up the trunk.

Further south the strip of woodland had been almost entirely pine with an occasional oak, not heavily wooded, but with many open glades made beautiful by beds of bracken interspersed with orange lilies; it was here that I had first found in any abundance, among blossoms of the large wild geranium, the pretty little longhorn—pale yellow, decorated with spots of black—*Pachyta monticola*. Now, hardly a tree was left standing, and the whole space was invaded by a wilderness of tall, rank grass and weeds; here and there, half buried in the vegetation, lay heaps of decaying pine brush, and from some of the larger branches, carefully picked up and scanned, were taken 6 or 8 specimens of *Leplostylus sexguttatus*. Finally as we reached the higher ground at the south end of the plateau, where fewer trees had been felled, I captured a specimen of *Leptura zebra* just climbing up through the sheaf of leafy shoots about an oak stump. Two or three years before when first some of the oak and other hardwood here had been felled, I had taken early in July quite a number of good things by laying chips of freshly prised bark on the sappy stumps, my captures including the handsome *Calloides nobilis*, *Arhopalus fulminans*, *Centrodera decolorata*, and a small species of the Oak-pruner (*Elaphidion*). But now, though empty tunnels and fresh borings gave ample evidence of insect life in the dead wood, there was nothing visible on stump or trunk except this solitary specimen of *Leptura zebra*, an insect I have occasionally captured pollen-feeding in the clusters of New Jersey Tea as well as on oak stumps.

And here under the pines near the edge of the most southerly slope one gladly sprawled for a few minutes' rest, looking out across the plains to Lake Ontario and Port Hope, and ruminating pleasantly over the past. Then up for a four-mile stretch by side-road, lane and field, fragrant of wild grape and sweet briar, and so home at last, dog-tired, hungry as hunters, and every bit as happy.

TWO NEW SPECIES OF APHIDIDÆ FROM JAPAN.

BY RYOICHI TAKAHASHI,

Forest Experiment Station, Meguro, Tokio, Japan.

Stomaphis pini, n. sp.

Winged viviparous female.

Head, antennæ; eyes, thorax, legs, cornicles and cauda black. Abdomen nearly pale brown, above blackish, darkest at the part between the cornicles, and with a dark brown spot on the under side of each segment. Wings somewhat dusky, stigma and veins black, veins shadowed. Body long and rather narrow, nearly parallel-sided, and with many fine hairs. Head very short, compound eyes rather small, supplementary eyes visible. Antennæ somewhat slender, with many hairs, the first joint longer and broader than the second. The relative lengths of the 3rd and the following joints are as follows:

III 74, IV 30, V 27, VI 38.

The third joint has about fifteen very large sensoria on the entire length, the fourth about 4 and the fifth only the usual one.

Wings slender, stigma large, the third oblique, twice forked, stigmatic vein extending to the apex of the wing, the second oblique of the hind wing very long hooklets five in number. The ninth abdominal segment with a small tubercle on the side. Cornicles very short. Cauda short, with many hairs. Legs

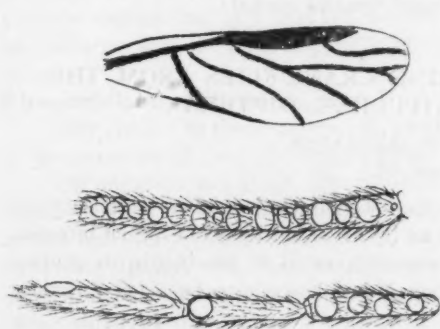


Fig. 13.—*Stomaphis pini*, n.sp., winged viviparous female; antenna (the 3rd to 6th joints) and fore wings.

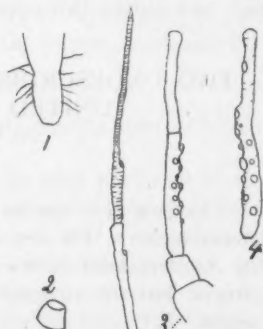


Fig. 14.—*Brachycolus graminei*, n.sp., winged viviparous female. 1. Cauda. 2. Cornicle. 3. Antenna. 4. The 3rd antennal joint of a female.

slender and long, hind legs much longer. Length of body 5.5 mm. Antennæ 2.3 mm. Rostrum 11.0 mm. Hind leg 5.4 mm. Fore-wing 5.5 mm. Hind wing 3.5 mm. Width of fore-wing 1.5 mm.

Host.—*Pinus densiflora*.

Type locality.—Tokio, Japan.

Many winged viviparous females which are probably sexuparæ, are found in November.

Brachycolus graminei, n. sp.

Wingless viviparous female.

Body black, somewhat greenish, densely covered with a white powder. Eyes, distal half of antennæ, cornicles, cauda, femora except distal half of the

April, 1920

fore femur and tarsi black. The third and fourth antennal joints and the basal portion of the fifth yellowish green. Distal half of the fore femur brownish, tibiae yellowish brown.

Body rather oval, not elongated, without hairs. Antennæ much shorter than the body, without hairs. The relative lengths of the third and subsequent joints are as follows: III 22, IV 17, V 22, VI 50 (15+35). Rostrum reaching the middle coxæ. Cornicles very small, broader than long. Cauda large, rounded at the apex. Legs short.

Length of body 1.7 mm. Antenna 0.8 mm.

Winged viviparous female.

Nearly similar to the wingless female in colour. Wings hyaline, veins black.

Antennæ nearly as long as the body, the relative length of the distal four joints is as follows: III 28, IV 23, V 25, VI 50 (15×35). The third joint with about twelve large sensoria, the fourth joint wanting sensoria usually. In some individuals the antennæ are only 5-jointed. Cornicles broader than long, broadest at the base, cauda large, the apex rounded, with some long, fine hairs. Legs slender. The third oblique vein twice forked, hooklets two.

Length of body 1.1 mm. Fore-wing 2.2 mm. Antenna 1.0 mm.

Host.—A plant belonging to the Gramineæ.

Type locality.—Tokio, Japan.

This species is very common from August onwards throughout the summer, and during this period many winged females appear.

TWO UNDESCRIBED PEDICIINE CRANE-FLIES FROM THE UNITED STATES (TIPULIDÆ, DIPTERA).

BY CHARLES P. ALEXANDER.

Urbana, Ill.

The two new species herein described were included in material sent for determination. The new *Dicranota* found by Mr. Lindsey is of especial interest. The *Rhaphidolabis* shows the greatest resemblance to *R. tenuipes* in its general features, but the structure of the hypopygium shows it to be a very distinct species.

Dicranota iowa, sp. n.

Size large (wing ♀ over 9 mm.); general coloration light grey, the mesonotal praescutum with four dark brown stripes; wings brownish grey, the stigma and a seam along the anterior portion of the cord dark brown; Cell M^1 lacking.

Female.—Length 8–8.3 mm.; wing 9.5–10 mm.

Rostrum and palpi dark brown. Antennæ dark brown throughout, with thirteen segments; in the female sex, the flagellar segments are short-cylindrical, closely approximated. Head with the front and a narrow margin surrounding the eyes light yellowish grey; vertex with the disk rich brown, becoming paler on the occiput.

Mesonotal praescutum light yellowish grey with four dark brown stripes, the intermediate pair separated by a capillary line of the ground colour; scutum grey, the lobes dark brown; scutellum and postnotum grey. Pleura grey. Halteres short, the stem yellow, brightest basally, the knobs brown. Legs with

the coxæ light grey, the tips more yellowish; trochanters brownish yellow; femora dark brown, paler basally; tibiae and tarsi dark brown. Wings with a brownish grey tinge; stigma dark brown, completely filling the space between r and the deflection of R^2 and occupying the outer end of cell Sc^1 ; a strong brownish tinge at the origin of Rs and along the deflection of R^{4+5} and $r-m$; less distinct seams along Cu and the other veins and cross-veins; veins dark brown. Venation: Sc^1 ending just beyond r ; Rs long for a member of this genus, strongly angulated and sometimes spurred near origin, longer than that section of R^{2+3} between r and the deflection of R^2 ; R^{2+3+4} variable in length, unusually short in the type; r on R^{2+3} a little more than its length beyond the fork; R^2 meeting R^1 a short distance from the tip of the latter; cell M^1 lacking; basal deflection of Cu^1 approximately equal to or shorter than R^{2+3+4} .

Abdomen dark brown, the extreme lateral margins of the segments paler. Ovipositor horn-coloured, the valves strongly upcurved.

Habitat.—Iowa.

Holotype.—♀, Sioux City, April 17, 1916, (A. W. Lindsey).

Paratopotype.—♀.

Type in the collection of the Illinois State Natural History Survey.

The specimens of this interesting crane-fly were given to Mr. Malloch by the collector to whom we are indebted for this material. In its size and general appearance, *Dicranola iowa* resembles *D. argentea* Doane (Western North America) but is readily told by the absence of cell M^1 of the wings. From the Eastern species that lack this cell (*rivularis* O. S., *eucera* O. S.), it may be told by the larger size, the long, angulated radial sector and the conspicuously marked wings.

***Rhaphidolabis persimilis*, sp. n.**

Very similar to the genotype, *R. tenuipes* O. S., but differing very strikingly in the structure of the male hypopygium.

The pleurites are stout, the proximal face near the base produced into a small, slender, clavate lobe which is provided with numerous long, pale setae at the tip; the proximal face of the pleurite is produced into a conspicuous, flattened, strongly bifid, pincer-like blade, the outer arm slender, curved, the inner arm flattened into a blade. The pleural appendages are two in number, rather small, of approximately equal length; inner appendage long-oval, densely set with chitinized spines; the outer appendage is flattened, broad basally, the short apex bluntly rounded. The gonapophyses appear as comparatively small chitinized hooks.

Rhaphidolabis tenuipes has the appendages similar but all conspicuously elongated; the flattened blade-like extension of the inner face of the pleurite is here very large, almost contiguous with its mate of the opposite side; this pale blade is subquadrate basally, the outer angle produced into a narrow, slightly curved arm, the margin of which bears numerous, small, appressed teeth. The pleural appendages are slender, the inner one especially so; the outer appendage is broad basally, inconspicuously bifid, the outer arm produced into a long, slightly twisted, flattened blade whose apex is evenly rounded and provided with a few small setae. The gonapophyses are similar to those in *R. persimilis* but the recurved tips are very long, nearly equal to the stems that bear them.

Habita.—Virginia.

Holotype.—♂, Difficult Run, Potomac River, October 28, 1917, (W. L. McAtee).

Paratypes.—♂, Great Falls, April 20, 1913, (C. P. Heinrichs); 2 ♂'s, Dead Run, May 10, 1916, (W. L. McAtee); 1 ♂, Virginia, near Plummer's Island, September 29, 1915, (W. L. McAtee).

HEMIPTERA FROM PEAKS ISLAND, MAINE, COLLECTED BY MR. G. A. MOORE.

BY H. M. PARSHLEY,
Smith College, Northampton, Mass.

During the seasons of 1918 and 1919 my friend Mr. G. A. Moore had brief opportunities for collecting on Peaks Island, in Portland Harbor, and has been kind enough to send to me for study the Hemiptera which he gathered there. This collection proves to be of considerable interest and merits a full report, especially since the published records from this part of Maine are very meagre. Some of the species are additions to the state list; one, *Stygnocoris rusticus*, has never before been found in the United States; and another is the first American representative of the Anthocorid genus *Tetrableps*.

SCUTELLERIDÆ.

Homaemus aeneifrons (Say). 1 Aug. '18, 4 Aug. '19.

Eurygaster alternata (Say). 3 Aug. '19.

CYDNIDÆ.

Thyreocoris pulicarius (Germar). 8 Aug. '19.

PENTATOMIDÆ.

Peribalus limbolarius Stal. 3 Aug. '18. New to the Maine list.

Mormidea lugens (Fabricius). 23 July, '18.

Euschistus tristigmus (Say). 28 July, '18.

Neottiglossa undata (Say). 27 July, '18.

Cosmopepla bimaculata (Thomas). 26 Aug., '19.

Meadorus lateralis (Say). 1 Aug., '19.

Elasmosteihus cruciatus (Say). 4 Aug., '18.

Podisus modestus (Dallas). 8 Aug., '19.

Podisus placidus Uhler. 26 Aug., '19.

NEIDIDÆ.

Neides muticus (Say). 29 July, '18.

LYGAEIDÆ.

Nysius ericæ (Schilling). 2 Aug., '18.

Ischnorhynchus geminatus (Say). 31 July, '18; 10 Aug., '19.

Phlegyas abbreviatus (Uhler). 24 July, '18.

Ligyrocoris diffusus (Uhler). 29 July, '18.

Ligyrocoris contractus (Say). 27 July, '19.

Kolenetrus plenus (Distant). 26 July, '18.

A male of this rare species, new to the Maine list, was found under moss.

Stygnocoris rusticus (Fallén). 31 July, '18; 8 Aug., '19.

This European species has recently been reported from Quebec and Nova Scotia. Its characters are discussed by Barber in one of his valuable papers on the Lygaeidae,¹ where he makes the comment, "The species has not yet been found within the United States, but it should occur in the mountainous parts of New England and New York." Boreal forms are likely to occur anywhere in Maine, becoming restricted to mountainous regions as their range extends southward.

TINGIDÆ.

Corythucha marmorata (Uhler). 31 July, '19.

Corythucha juglandis (Fitch). 10 Aug., '19.

***Corythucha pyriformis*, sp. nov.**

Membranous portions very clear hyaline, the surface shining; disc of pronotum brown; dorsal veinlets of hood very slightly marked with brown; paranota with a single distinct dark brown spot before middle; median carina with a very indistinct brown spot; lateral carinæ and apex of angulate process white with a brownish tinge. Hemelytra with distinct dark brown basal and apical bands, the latter equal in width to one-third entire length of hemelytron, enclosing three or four large, almost entirely hyaline areoles, the apical row of areoles largely hyaline from apex of wing inwardly. Antennæ, legs except tarsi, and edges of plates forming rostral groove yellow.

Hood slightly higher than median carina and somewhat longer, its height one-half its length, its width not quite one-third width of entire pronotum (14-46); hood pyriform, slightly constricted, sides convergent anteriorly and but slightly concave as viewed from above, anterior lobe thus not distinctly marked off; dorsal areoles very large; hood as seen in profile very slightly rounded above except at ends, moderately arcuate as a whole. Median carina slightly shorter than hood (24-26), slightly and angulately arched, with two rows of areoles at middle, its height less than one-third its length (7-24). Lateral carinæ moderately developed, with three or four areoles, terminating far from base of hood. Paranota large, unusually expanded anteriorly and together widest well before middle. Costal margin of hemelytra nearly straight; marginal spines of paranota and hemelytra few and rudimentary; discal elevations of moderate size, with sharp dorsal edge, not strongly inflated; costal area largely triseriate; hemelytra broadly rounded at apex. Antennæ with numerous setæ. Length ♂ 4.08 mm.; width 2.34 mm.

Holotype ♂, Peaks Island, Maine, 31 July, '19, (G. A. Moore), in my collection. Paratype ♂, Franconia, New Hampshire (Mrs. A. T. Slosson), in Mrs. Slosson's collection.

This species is closely related to *pruni* Osborn and Drake, although by following Gibson's key² strictly it runs to *hoodiana* Osborn and Drake. From the former it may be distinguished by the structure of paranota and hood, the slight development of marginal spines, and broader form. The latter, known only from Oregon, is described as larger (length 4.3 mm.), with strongly constricted hood.

Melanorhopala clavata Stal. 26 Aug., '19.

-
1. Concerning Lygaeidae.—No. 2, Jour. New York Ent. Soc., Vol. 26, 1918, p. 53.
 2. The Genus *Corythucha* Stal. Trans. Am. Ent. Soc., Vol. 44, 1918, p. 74.

NABIDÆ.

Nabis subcoleoptratus Kirby. 29 July, '18.

Nabis fesus (Linné). 31 July, '19.

Nabis roseipennis (Reuter). 25 July, '18; 1 Aug., '19.

There is difference of opinion concerning what I take to be the short-winged female of this species. Some are inclined to consider that such specimens represent the *Nabis inscriptus* of Kirby, as redefined by Reuter,³ but the only distinctive character given by the latter author, applicable to the female, is the short first antennal segment, and I have yet to see a specimen exhibiting this feature; moreover, Reuter states that *inscriptus* is very similar to *brevis*, from which it is distinguished by its smaller head and less prominent eyes, and, it would seem, its shorter first antennal segment.

Nabis rufusculus (Reuter). 26 July, '19.

Certain of the commonest species of *Nabis* present perplexing difficulties in determination. It is hoped that the following key to the north-eastern species will aid in identification of specimens and serve to draw the attention of students to these interesting forms. Some time ago I was privileged to spend an evening with my friend H. G. Barber in the study of his collection and MS. notes on this group, and with his permission I have incorporated in this synopsis the pertinent results of that conference. Subsequent study has shown that Reuter's subgeneric criteria are of great value in understanding the group, and that the male genital characters, emphasized by Reuter, should not be neglected.

1. Body in large part shining black; head distinctly and obliquely narrowed behind eyes; front femora without spines; wing cell with hamus arising from origin of decurrent vein (Subgenus *Nabicula* Kirby); length 9-10.5 mm.....*subcoleoptratus* Kirby.
- Body wholly or in large part pallid or brown; head parallel or nearly so behind eye.....2.
2. Front femora with minute spines below; wing cell with hamus; connexivum more or less distinctly spotted; femora spotted, annulate at apex; tibiae annulate (Subg. *Hoplistoscelis* Reuter); length 6.4-7 mm..*sordidus* Reuter.
- Front femora without spines; connexivum usually not spotted3.
3. Femora with a subapical dark ring; wing cell without hamus; hind lobe of pronotum distinctly punctate (Subgenus *Lasiomerus* Reuter); length 8-9.5 mm.....*annulatus* Reuter.
- Femora without ring; wing cell with hamus; hind lobe of pronotum almost or quite impunctate.....4.
4. Form elongate; short-winged forms with hemielytra less than three times length of scutellum; first antennal segment generally about as long as head; hamus arising very near or at origin of decurrent vein; long-winged forms extremely rare (Subgenus *Dolichonabis* Reuter).....5.
- Form broader, more or less ovate; short-winged forms usually with much longer hemielytra; first antennal segment generally shorter than head; hamus arising from decurrent vein; long-winged forms common as a rule (Subgenus *Nabis* Latreille).....6.

3. Bemerck. ueb. Nabiden, Mem. Soc. Ent. Belgique, Vol. 15, 1908, pp. 87-130.

5. Form very narrow; head about five times longer than wide between eyes; hemielytra in short-winged form rounded at apex, membrane lacking; length 9–12.5 mm.....*propinquus* Reuter.
Form broader; head about three times longer than wide between eyes; shortened hemielytra truncate at apex, membrane present; length 7.5–8.75 mm.....*limbatus* Dahlbom.
6. Hemielytra in long-winged form without three brown dots; undeveloped hemielytra much shorter than abdomen; dorsal surface of abdomen dark brown, margin of connexivum and single or double median stripe pale; length 8–9 mm.....*flavomarginatus* Scholz.
Hemielytra in long-winged form with three brown dots, one on disc of corium, two on membranal suture; undeveloped hemielytra about as long as abdomen; dorsal surface of abdomen without median stripes....7.
7. First antennal segment very slightly longer than anteocular portion of head; dorsal surface of abdomen black; tibiae with black dots; copulatory hooks of male with large semicircular short-pointed blade and short stem (*fide* Reuter).....*inscriptus* Kirby.
First antennal segment much longer than anteocular portion of head....8.
8. Colour gray; form narrow; markings of posterior surface of front and middle femora tending to become a transverse striping; tibiae immaculate.....9.
Colour reddish to dark brown; form broader; femora conspicuously spotted, less tendency to striping.....10.
9. Anterior femora extending beyond apex of head; copulatory hooks of male with large semicircular blade and stem broadened basally; length 6.5–8.5 mm.....*ferus* Linné.
Anterior femora not reaching apex of head; copulatory hooks with small elongated blade and broad arcuate stem; length 6–6.5 mm. (recently introduced from Europe).....*brevis* Scholz.
10. Posterior tibiae dotted; colour dark brown; membrane in short-winged form with closed cells; hooks with small triangular blade and long, broad, undulated stem; length 6.5–8.5 mm.....*roseipennis* Reuter.
Posterior tibiae immaculate; colour pale reddish brown; membrane in short-winged form without closed cells; hooks with large, semicircular, long-pointed blade and short stem; length 5.6–7 mm.....*rufusculus* Reuter.

ANTHOCORIDÆ.

Genus *Tetrableps* Fieber.

Fieber, Wien. Ent. Monat., Vol. 4, 1860, p. 262, Pl. 6, Fig. F; Id., Eur. Hem., 1861, pp. 37–38, 135–136.

Reuter, Monog. Anthoc., 1884, p. 56, 85.

Slosson, Ent. News, Vol. 17, 1906, p. 326.

Body finely pubescent; eyes slightly distant from pronotum; first rostral segment not extending beyond insertion of antennæ; second antennal segment clavate, third and fourth fusiform. Sides of pronotum explanate and suddenly curved inward anteriorly, extending more or less beyond level of base of pronotal collar. Membrane with four distinct veins. Metasternal canals nearly or quite straight, very slightly oblique, tending posteriorly, prominently

elevated and free apically, the longitudinal line extremely fine, very slightly curved, forming a right angle with the canal.

This genus is distinguished from *Anthocoris* Fallén especially by the explanate lateral margins of the pronotum, more distinctly punctate hemielytra, and the apical prominence of the metasternal canals.

North American species of this palaearctic genus are here recorded for the first time, although Mrs. A. T. Slosson in her tenth Mount Washington list includes "*Tetraphleps*, n. sp." Finding an example of this genus among Mr. Moore's material, I wrote Mrs. Slosson in regard to the matter, and I am indebted to her kindness for the privilege of examining the specimen (determined as above by Heidemann) which served as a basis for the Mt. Washington record. This proves to be distinct from the Peaks' Island specimen. Mr. Van Duzee has kindly sent for study an Ontario example, identical with the Peaks' Island individual, which he had independently recognized as undescribed. Both species are distinct from the old world forms, and are characterized herewith.

***Tetraphleps americana*, sp. nov.**

Dark piceous; head, pronotum, and scutellum concolorous; second antennal segment more or less distinctly paler at middle. Hemielytra light brown, variegated; apex of clavus, corium and embolium inwardly, most of cuneus, and the sutures and veins darker; membrane smoky brown, basal and two lateral spots, and vittæ following veins white; membranal suture polished, broadly black from apex of clavus to origin of outer vein. Ventral surface and legs dark piceous; apices of femora, thoracic sterna, pleura, and epipleura (of hemielytra) paler. Rostrum piceous or black.

Dorsal surface shining, with conspicuous slightly curled pale pubescence and a few long, erect black setæ on head, pronotum, and scutellum. Head elongate (23–20 including eyes, excluding collar); vertex longitudinally rather convex, eyes moderately prominent, the transverse diameter of an eye not quite equal to one-half width between eyes (5–11); length of anteocular portion slightly more than twice the length of an eye. Jugs strongly constricted before insertion of antennæ, compressed and prominent at apex; anterior and of tylus rounded, apex of head thus bi-emarginate. Rostrum extending well beyond front coxæ, second segment becoming slenderer before middle, more than twice length of third (30–14). Antennæ with fine pale pubescence and rather numerous long erect setæ, longer than head and pronotum together (52–45); first segment reaching middle of expanded portion of jugs; second segment in length equal to width of head including eyes, enlarged in apical third; third almost cylindrical; fourth fusiform, thicker than second at apex; third and fourth equal in length, together longer than second (26–20). Pronotum obsoletely rugulose, with sparse, minute, but sharply distinct punctation posteriorly; length on median line two-fifths width at base; posterior margin broadly rounded at middle; lateral margins straight, strongly convergent, slightly rounded anteriorly; explanate portions very narrow, scarcely reflexed, reduced to a fine carina behind middle, extending anteriorly but little beyond level of base of collar. Scutellum polished, slightly tumid at base, transversely depressed just behind middle, transversely rugulose at apex. Hemielytra slightly narrower than abdomen at base of cuneus (♀), apex of latter acute; length of membrane be-

yond level of cuneal apices distinctly less than length of cuneus; veins of membrane distinct, variable, connected apically by a very feeble arcuate vein. Length ♀ 3.35–3.67 mm.; width 1.39–1.50 mm

Holotype.—♀, Peaks Island, Maine, 3 Aug., 1919, (G. A. Moore), in my collection.

Paratype.—♀, Ottawa, Canada, 1 Sept., 1905, (A. Gibson) (bears also label reading Gibson 7–21–12), in Van Duzee's collection.

This species is especially distinguished by the very narrow explanate margins of the pronotum, which do not extend forward to the middle of the pronotal collar and turn sharply inward and backward as they do in the palæarctic *bicuspis* Herrich-Schaeffer (*vittatus* Fieber). The proportions of antennal and rostral segments are somewhat different, the surface is more shining, and the fine pubescence of the dorsal aspect is twice as long in *americana*. Through the kindness of Mr. E. H. Gibson I have had for comparison a fine series of *bicuspis*, collected and determined by Montandon.

***Tetraphleps uniformis*, sp. nov.**

Similar to *americana* except in the following characters:

Colour almost uniform light brown, head a shade darker, hemielytra a shade lighter. Membrane light smoky brown, with a very vague paler area at base and one along middle portion only of each vein. Tibiæ inwardly and apices of femora pale.

Head excluding collar and including eyes as long as broad; the diameter of an eye distinctly less than one-half width of vertex (5–13); length of antecular portion distinctly less than twice the length of an eye (12–8). Antennæ long and slender, much longer than head and pronotum together (60–45); first segment reaching almost to apex of juga; second segment longer than width of head including eyes (24–22). Pronotum distinctly transversely rugulose in basal area, the punctures here most extremely fine. Basal emargination very obtusely angulate, not rounded (possibly a variable character). Lateral explanate margins very narrow, but appreciably reflexed. Apex of cuneus narrowly rounded. Membrane long, its length beyond cuneal apices equal to length of cuneus. Length ♀ 3.68 mm.; width 1.46.

Holotype.—♀, Mt. Washington, New Hampshire (Mrs. A. T. Slosson), in Mrs. Slosson's collection.

This species may be distinguished from *americana* by its pale, uniform coloration and by the proportions of head, antennæ, and membrane. Probably the American forms will be found to occur on coniferous trees, since the European *T. bicuspis* is reported as frequenting firs and larches in England.

Van Duzee has communicated to me his opinion that Provancher's description⁴ of *Tetraphleps canadensis* seems to refer to a true *Tetraphleps*, although the specimen bearing this name in the Provancher collection is a species of *Lyctocoris*. The mention of hemielytra "à coin fort long" and membrane "avec 4 nervures longitudinales très distinctes" would favour this opinion, but on account of the omission of more important characters it is hardly possible to reach a certain conclusion. Provancher's description is scarcely detailed enough for specific recognition, and even as far as it goes it fails to apply closely to either of the species characterized above.

4. Pet. Faune Ent. Can., Vol 3, 1886, p. 90.

Triphleps insidiosa var. *tricolor* White. 29 July, '18. New to the Maine list.

MIRIDÆ.

Collaria meilleurii Provancher. 29 July, '18; 1 Aug., '19.

Miris dolabratus (Linné). 24 July, '18.

In his exhaustive accounts of this species,⁵ Professor Osborn advances the hypothesis that it is an introduced form, having reached this country about 1800, but it seems to me at least equally probable that it is truly holarctic. Horvath⁶ includes *dolabratus* in his list of species which owe their presence here "non à une importation artificielle," adducing divers general considerations not touched upon by Osborn. With reference to the five arguments proposed by the latter, we may note that the early records of Hemiptera omit also many very common and certainly native forms and are in general too fragmentary to have much weight in the matter; that the indications of "a gradual westward and southward dispersal" may possibly be correlated with the spread of interest in the Hemiptera rather than with the movements of the species; and that the presence of *dolabratus* in the interior of British Columbia (Lillooet) and in wild parts of northern Maine (Traveller Mt.), according to records which I have published, is not very likely to be due to the introduction of cultivated grasses from Europe. The species occurs in Siberia, as well as in Europe, and we should await further evidence from the interior of British America and from Alaska before considering the question as settled.

Stenodema vicinum (Provancher). 24 July, '18; 3 Aug., '19.

Platytyellus insitivus (Say). 4 Aug., '19.

Pithanus maerkelii (Herrich-Schaeffer). 30 July, '18; 31 July, '19.

Another species which may be either holarctic or introduced.

Neurocoplus nubilus (Say). 31 July, '18.

Phytocoris lasiomerus Reuter. 3 Aug., '19.

Phytocoris pallidicornis Reuter. 8 Aug., '19.

Phytocoris eximius Reuter. 6 Aug., '19.

Phytocoris tibialis Reuter. 3 Aug., '19. New to the Maine List.

Phytocoris mundus Reuter, var. 31 July, '18.

Adelphocoris rapidus (Say). 31 July, '19.

Poeciloscytus basalis Reuter. 3 Aug., '18.

Capsus ater (Linné). 24 July, '18.

Coccobaphes sanguinarius (Uhler). 10 Aug., '19.

Lygus pratensis var. *oblineatus* (Say). 3 Aug., '18.

Lygus pabulinus var. *signifer* Reuter. 27 July, '18; 10 Aug., '19.

Lygus confusus Knight. 10 Aug., '19.

One male and two females of this species, hitherto known only from the single type and an associated female. Knight has studied and determined these specimens.

Lygus communis Knight. 3 Aug., '19.

Lygus omnivagus Knight. 27 July, '18.

Lygus belfragei Reuter. 2 Aug., '18; 28 July, '19.

5. The meadow plant bug, Bull. Maine Agr. Exp. Sta., No. 276, 1919. The meadow plant bug, *Miris dolabratus*, Jour. Agr. Research, Vol. 15, 1918, pp. 175-200.

6. Rels. entre faunes Hém. Eur. et Am., Ann. Mus. Nat. Hungarici, Vol. 6, 1908, pp. 1-14.

The second specimen recorded has the clavus entirely dark and the apical dark spots of corium larger than usual though, as is characteristic of the species, they fail to reach the lateral margins.

Lygus hirticulus Van Duzee. 29 July, '18.

Camptobrochis nitens Reuter. 8 Aug., '19.

Camptobrochis sp. 30 July, '19.

Determined by Knight, who is at work on the genus.

Monalocoris filicis (Linné). 29 July, '18; 10 Aug., '19.

Hyaliodes vitripennis (Say). 30 July, '19.

Dicyphus agilis (Uhler). 30 July, '18.

Dicyphus famelicus (Uhler). 26 Aug., '19.

Strongylocoris stygicus (Say). 6 Aug., '19.

Pilophorus amoenus Uhler. 31 July, '18.

Lopidea media (Say). 29 July, '19.

Diaphnidia pellucida (Uhler). 30 July, '19; 4 Aug., '18.

Orthotylus flavosparsus (Sahlberg). 31 July, '18.

Orthotylus cruciatus Van Duzee. 2 Aug., '18.

Ilnacora malina (Uhler). 3 Aug., '19.

Onychumenus decolor (Fallén). 26 July, '19.

Plagiognathus spp.

Several species which cannot be determined at present.

Campylomma verbasci (Meyer-Dür). 29 July, '18.

GERRIDÆ.

Gerris marginatus Say. 28 July, '18; 8 Aug., '19.

Limnoporus rufoscutellatus (Latreille). 8 Aug., '19.

NOTES ON THE LARVÆ AND PUPÆ OF CERTAIN PTEROPHORID SPECIES. (LEPID.).*

BY J. MCDUNNOUGH, PH.D.,

Entomological Branch, Dept. of Agriculture, Ottawa.

In the vicinity of Chelsea, Que., a small village on the Gatineau River about nine miles north of Ottawa, I found the larvæ of four Pterophorid species quite abundant during the latter half of May, 1919. Two species, *Pterophorus elliotti* Fern. and *P. eupatorii* Fern., occurred on *Eupatorium*; two others, *Pterophorus homodactylus* Wlk. and *Trichoptilus lobidactylus* Fitch. fed on the terminal buds of a *Solidago* species, the latter being very numerous, the former comparatively rare.

Dr. Dyar (1898, *Psyche*, VIII, 249) has already published notes on the larval and pupal stages of three of these species, viz., *T. lobidactylus*, *P. elliotti*, and *P. eupatorii*; in the same paper he is inclined to doubt the specific distinctness of *P. homodactylus* from *P. elliotti*, which is not to be wondered at when the great similarity of the adults is taken into consideration. Dr. Dyar is correct in considering the larval description of *homodactylus* published by Fernald in his monograph of the Pterophoridae (p. 41) to be that of *elliotti*; both larva and pupa of the true *homodactylus* (the *Solidago* feeder), however, show excellent characters whereby they may be separated from *elliotti* and the two are undoubtedly distinct species.

April, 1920

I append my notes on the larvæ and pupæ of all four species as they serve to amplify in some instances Dr. Dyar's notes; the figures of the pupæ show the very characteristic arrangement of tubercular setæ and secondary hairs, a feature quite constant in each species.

***Trichoptilus lobidactylus* Fitch.**

Larva (full-grown).—Head ochreous. Body cylindrical, green, with slightly darker mediodorsal line, due to the dorsal vessel showing through the integument, and containing on each segment centrally a minute black dot; several other similar black points are scattered with more or less regularity over the integument, the most constant being a single one midway between tubercles II and III and another, rather linear in shape, before the spiracle. Subdorsally there is a series of large, brownish, rectangular, chitinous patches extending across the major portion of each segment and containing tubercles I and II which are represented by two long brownish setæ, arising from the centre of each patch, very glutinous, swollen irregularly several times during their length and club-shaped at their tips; the posterior portion of each patch contains two minute, whitish, club-shaped setæ. Tubercle III is represented on the abdominal segments by a single long brownish seta, a short anterior whitish one and a minute posterior hair (?IIIa of Dyar). Tubercle IV+V, directly below the spiracle, consists of an anterior shorter and a posterior longer clubbed white seta arising from a brownish base: there are usually also two further minute white clubbed hairs situated respectively on the ventral and on the posterior margins of this dark base. Ventral to the tubercles and on the posterior margin of each segment are generally several minute white clubbed hairs. A single white unclubbed hair arising from a dark base and surrounded by other minute hairs probably represents tubercle VI and two or three small hairs at the base of the prolegs constitute tubercle VII.

On the thoracic segments the dorsal setæ show some variation from that normally found on the abdominal segments; on the mesothorax tubercle I+II consists of two long setæ and one minute white one whilst on the metathorax only a single long dorsal hair is found. On both segments tubercle III shows two long setæ. The prothorax has a row of six long hairs along the anterior margin with a second row of six immediately behind these; the dorsal area corresponding to the prothoracic plate is covered with fine, minute, white, clubbed hairs. Ventrad and anterior to the spiracle is a tubercle bearing three hairs. All spiracles pale, brown-ringed. Length 10 mm.

The arrangement of tubercular hairs as listed above differs in several points from Dr. Dyar's figure of the fifth abdominal segment of this species (1899, Ent. Rec. XI, pl. 1, Fig. 1) but this is in the main due, I believe, to slight inconstancy in the number of small white secondary hairs which may occur on each primary tubercle; Dr. Dyar's figure accentuates these secondary hairs, giving the impression that they are nearly as long as the primary, dark ones, which was far from the actual case in all specimens examined by me.

Pupa (Fig. 1).—Rather bluntly truncate at apex with four short horns arising from the base of the antennal and eye-sheaths and a distinct sub-dorsal ridge extending as far as fourth abdominal segment. Colour green, with the horns and surrounding area extending over the prothorax vinous pink; a large,

*Contributed from Entomological Branch, Department of Agriculture, Ottawa, Canada.

pink, dorsal patch is also present on each of the third and fourth abdominal segments (not segments 4-5 as stated by Dr. Dyar). The wing-cases are darker green than the remainder of the pupal integument and possess three more or less complete parallel rows of minute white clubbed hairs; the sheaths of the legs and mouth-parts are not very clearly differentiated and are well sprinkled with minute white warts or lenticles, particularly numerous on the eye caps. The tubercular setæ of the larval stage are present, tubercles I and II being situated on the subdorsal ridge and particularly prominent on the pink-coloured segments. The prothoracic plate and the dorsal portions of the other thoracic segments are heavily sprinkled with small white lenticles; these lenticles on the abdominal segments are generally restricted to the area contiguous to the tubercular setæ, this area being bounded posteriorly by a row of four or five short white clubbed hairs placed at regular intervals. The cephalic portion of the modified tenth abdominal plate contains a cluster of minute pinkish hairs and the cremaster is composed of a larger cluster of similarly coloured, glutinous hairs.

***Pterophorus homodactylus* Wlk.**

Larva (full-grown).—Head pale greenish ochreous. Body light green with dorsal ochreous line broken in the centre of each segment so that the anterior portion tends to form a short inverted Y, and the posterior portion, commencing as a fine line, thickens into a small elongate diamond-shaped patch, again narrowing at the rear of each segment. A broken, subdorsal, ochreous line is also present, situated dorsad to tubercle III and curved downward on the posterior portion of each segment; traces of a spiracular line are present on the thoracic segments.

The hair arising from the tubercles is long, dull-white and slightly barbed; the normal arrangement of setæ on an abdominal segment is as follows:—tubercles I and II are distinct but contiguous; I has four long subequal setæ, II bears two similar ones and a further short posterior one, pointing backward. Tubercle III shows one long central seta and two shorter anterior ones, bent forward. On the first seven abdominal segments a single hair on the posterior margin of the segment dorsad to the spiracle probably represents IIIa. Tubercle IV+V is very large and situated directly on the lateral flange; it bears about twelve hairs, mostly long. Directly behind them is a tubercle bearing two medium-sized hairs and two short ones; this is presumably IIIb of Dyar. Tubercle VI, below the flange, bears ten to twelve hairs and VII is represented by several hairs at the base of the prolegs. The thoracic segments show the usual modifications: on the mesothorax I+II bears three long, subequal hairs and one short anterior hair and on the metathorax this number is increased by a single moderately long hair; both segments show a single hair directly posterior to this group. Tubercle III shows four setæ of which the central one is the longest; in line with the abdominal spiracles near the rear edge of the segment is a tubercle which bears one medium hair and one small hair pointing backwards (?IIIb). The prothoracic plate is not well defined; two large patches of white hair project over the head; behind these are two long single hairs and on the posterior portion three tubercles, the central one bearing two hairs and each lateral one three. Two large lateral tubercles with numerous hairs are

present, the raised spiracle being situated posterior to the upper one near the rear margin of the segment. Length 14 mm.

Pupa (Fig. 2).—Pale green, with long, white, subequal hairs; wing-cases smooth with fringe of short hair only on margin of primaries. The ends of the leg sheaths project free but unequally above the fifth and sixth abdominal segments; the inner sheaths (prothoracic legs) reach to the rear edge of the fifth segment, the outer ones (mesothoracic) to the middle of the sixth segment; beneath these a third pair (metathoracic) projects still further, reaching nearly to the rear edge of the segment. The antennal sheaths are slightly shorter than the prothoracic legs. Apex of pupa sloping gently forward to base of antennae where a distinct crescentic flange or ridge is formed; a distinct subdorsal ridge is present, becoming obsolete caudad to the second abdominal segment. There is a narrow, cream-coloured dorsal stripe, a broad subdorsal one along the ridge, encircling tubercles I and II, two pale broken lateral stripes, slightly downwardly oblique from front to rear, the lower one broader and crossing tubercle III, and a creamy stripe along the lateral flange.

The tubercular setae are reduced in number as compared with those of the larval stage; two white hairs arise from both tubercles I and II, tubercle III shows a single hair; tubercles IV and V appear to have become separated, both being situated on the lateral flange, the former with two, the latter with two or three smaller hairs. The number of dorsal hairs is increased on the two posterior abdominal segments and on the thoracic ones tubercle III shows the usual two setae. There is on the prothorax a posterior row of eight setae crossing the segment, a single lateral hair and a fringe of hairs across the apex.

Apart from the different arrangement of tubercular hairs and the distinct food plant, the larva may be readily differentiated from that of *elliotti* by the distinctly spiculate nature of the hair, the dull white colour of the same and the fact that the hairs are finer, subequal and considerably shorter than those of *elliotti*; the pupa is recognized by the lack of all secondary hairs and the absence of any fine hairs on the wing cases, except the single row along the lateral margin. In the imago the best point of distinction seems to be the absence in the present species of the dark costal streak above the base of the incision on the primaries; the whole costal portion from base to apex is suffused with smoky brown but there is no trace of the distinct dark costal streak which is clearly visible in *elliotti*; of course, in rubbed specimens an exact determination is most difficult.

***Pterophorus elliotti* Fern.**

Larva (full-grown).—Head pale ochreous. Body light green with long, white, shiny, non-spiculate hairs from the tubercles, the longest being about 4 mm. in length. Except on the prothorax there is a distinct creamy dorsal line broken in the centre of each segment by a small, round dot of the ground colour; traces of a pale subdorsal line are visible crossing tubercles I and II, especially shortly before pupation; a somewhat broken pale lateral line midway between tubercles I and III and a similar spiracular line, broken on the posterior portion of each segment. Prothoracic plate indistinctly defined, the arrangement of setae on this segment being similar to that found in *homodacrylus*. On the other thoracic segments tubercle I+II bears two long, central hairs and three shorter ones, two anterior and one posterior. A single minute hair is situated

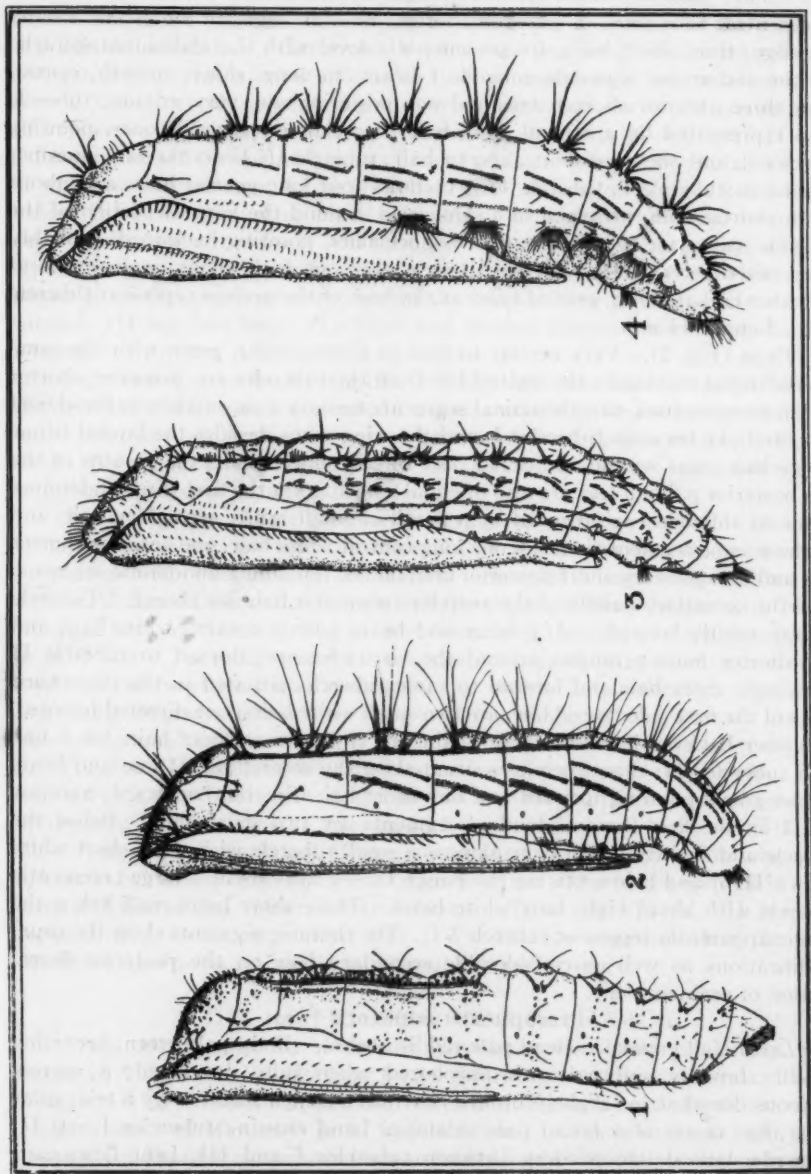


Fig. 1.—Pupa of *Trichoptilus lobidactylus* Fitch.
 Fig. 2.— " " *Pterophorus homodactylus* Wlk.
 Fig. 3.— " " *Pterophorus elliotti* Fe.n.
 Fig. 4.— " " *Pterophorus eupatoriū*, Fern.

directly posterior to this group. Tubercle III shows two long central setæ, two minute posterior ones and three longer anterior ones; tubercle IV has four long central hairs and six or seven shorter ones arranged in a crescent around the edge; three short hairs are present on a level with the abdominal spiracle. On the abdominal segments tubercle I bears one long, shiny, smooth, central seta, three anterior shorter ones and one posterior one, very minute; tubercle II is represented by a central, long hair, two shorter posterior ones, pointing backward, and one very short anterior hair; tubercle III bears the same number of setæ as tubercle I; tubercle IV+V shows four long central hairs and about seven shorter ones, arranged in a semicircle around the ventral portion of the tubercle; posterior to this group two short hairs, pointing backward, probably represent tubercle IIIb; tubercle VI is a large one with about twelve hairs of which several are long; several hairs at the base of the prolegs represent tubercle VII. Length 14 mm.

Pupa (Fig. 3).—Very similar to that of *homodactylus*, green with the same pale ochreous markings: the white hairs from the tubercles are, however, shorter and more numerous, the abdominal segments contain a short white centrodorsal hair, midway between tubercles I, and the wing cases, besides the lateral fringe of fine hair, bear several additional rows of still shorter hair; the sheaths of the two posterior pairs of legs are also of equal length. On the first three abdominal segments tubercle I is preceded by a patch of small, white secondary hair, and on these same segments it bears one long central white hair, one anterior shorter hair and a single very short posterior one; on the remaining abdominal segments both the secondary hairs and the anterior tubercular hair are absent. Tubercle II is distinctly laterad to I, is large and bears a long, central, white hair, and five shorter hairs arranged around the circumference; dorsad to tubercle II is a single short hair and laterad to same tubercle, situated in the downward angle of the first pale lateral line, are two small white hairs, one directed forward, the other backward; below these again are two further short hairs on a line with tubercle III; this tubercle is situated on the second lateral line and bears one long hair pointing forward and one short hair directed backward; anterior to III on the first three abdominal segments are two short hairs. Below the spiracle and slightly posterior to same is a small tubercle with three short white hairs (IIIf) and below this on the flange IV+V appears as a large crescentic tubercle with about eight long white hairs. Three short hairs, well below the flange, apparently represent tubercle VI. The thoracic segments show the usual modifications as well as considerable secondary hair on the posterior dorsal portion of each segment.

***Pterophorus eupatorii* Fern.**

Larva (full-grown).—Head pale reddish ochre. Body pale green, becoming dorsally broadly suffused with purple-red when fully developed; a narrow ochreous dorsal stripe slightly broken centrally on each segment by a triangular green dot; traces of a broad pale subdorsal band crossing tubercles I and II; a narrow lateral line midway between tubercles I and III, bent downward posteriorly; a broken spiracular line. The principal setæ from tubercles I-III are blackish, very slightly spiculate, long and subequal. On the abdominal segments tubercles I and II are in line, contiguous, each with two long black setæ, the former in addition bearing two shorter anterior hairs, the latter with

two similar posterior ones and two very minute ones situated one posteriorly and one anteriorly. Tubercle III bears two long black setæ and one or two short white hairs. Behind the spiracle on the posterior margin of the segment is a minute white hair. Tubercle IV+V bears five long central white hairs and about the same number of shorter ones arranged as a rosette around the central hairs; two short white hairs directed backward are found posterior to this tubercle; VI is very similar in arrangement of setæ to IV+V and VII is as usual represented by several hairs at base of prolegs. On the prothorax a fringe of white hairs overhangs the head; behind this is a row of five black hairs and behind this row again are six black hairs arising from three tubercles, the middle one of which is centro-dorsal. On the meso- and metathoracic segments tubercle I+II bears five long black hairs, and two or three short anterior white ones; posterior to this group are two short white hairs arising from a small tubercle; tubercle III has two long black hairs and several shorter white ones. Length 13 mm.

Dr. Dyar's statement (Psyche, VIII, p. 250) that *eupatorii* larvæ feed on the underside of the leaf, concealed, whereas *elliotti* larvæ feed exposed on the upper side, was not verified by my observations; both species may be taken on either the upper or underside of the leaf, a favourite place being among the terminal half-opened leaf-buds.

Pupa (Fig. 4).—Apple green with purple-red suffusion each side of a pale centro-dorsal stripe; the lateral portions below the subdorsal ridge prominently purple-red with two oblique pale lateral lines and a similar spiracular one. Subdorsal and subspiracular flanges well-developed. Wing sheaths with lateral fringe of hair and further rows of short hair along the antennal and leg sheaths as in *elliotti*. Tubercles I and II on abdominal segments each with five or six finely spiculate white hairs, arranged more or less longitudinally, the central hair being longest. Dorsad to tubercle II is a single minute hair; on the first three abdominal segments dorsally is a small tuft of short hair anterior to tubercle I. Tubercle III, situated on anterior portion of the lower lateral stripe, bears only a single short white seta; posterior to it are two short hairs near rear portion of segment and arranged in line parallel to the segmental incision. Tubercle IV+V, situated on the lateral flange, is prominent, with about twelve long white spiculate hairs, and immediately anterior to it and close to the spiracle are two minute hairs arising from a small tubercle. Tubercles VI and VII are each represented by a couple of short hairs. The thoracic segments show the usual modifications in respect to the number of tubercular setæ.

THE HOUSE CENTIPEDE IN CANADA.

With reference to the records of the House Centipede in Canada, published in Can. Ent., Vol. LII, p. 8, the following may be of interest. While living on King St., in London, Ont., we had occasion to renovate a part of the house which had been used as a "back kitchen." This brought to light specimens of the House Centipede in large numbers, and I killed more than a hundred of them. Some were pinned in a box and shown to Dr. Bethune, the rooms of the Entomological Society at that time being in London. No special notes were made as the occurrence was not thought to be unusual.

A. C. BAKER.

SOME RECORDS OF CANADIAN MYRIOPODS.

BY RALPH V. CHAMBERLIN,
Cambridge, Mass.

These notes are based upon a small collection of chilopods and diplopods chiefly from the region of Ottawa and Quebec City, Canada, made by Mr. Frits Johansen and by him sent to me for identification. The collection is especially interesting in containing representatives of two European diplopods not previously known to occur in America, *Blaniulus guttulatus* and *Julus fallax*. It seems desirable to place on record this first known appearance of these forms on this side of the Atlantic, occasion being also taken to list the other species represented in the collection. All specimens were collected in 1919.

DIPLOPODA.

1. **Polydesmus moniliaris** Koch.

This is a comparatively common form in the eastern United States northward from Pennsylvania through New York and New England. In the collection are two specimens from Ottawa, and one from Quebec City.

2. **Polydesmus serratus** Say.

A species abundant in the United States in the eastern portion and westward to the Mississippi valley. Six specimens, adult males and females, were taken at Ottawa.

3. **Blaniulus guttulatus** Bosc.

This interesting julid occurs throughout Europe, but is most abundant in the western parts, as in France, Belgium and Germany. In those countries it has been regarded as an injurious form, attacking various vegetables such as beans, potatoes, beets, cucumbers and gourds.* Numerous specimens of this form were taken at Quebec City in Sept., 1919.

4. **Julus coeruleocinctus** Wood.

This species is abundant from Pennsylvania northward through New York and New England. In New York particularly it has frequently been accused or suspected of damaging vegetable crops. It is represented in the collection by specimens from Ottawa and Quebec City.

5. **Julus fallax** Meinert.

One adult female of this species was taken at Ottawa. It is a common European form, well-known both upon the continent and in England and Ireland. It has also made its way by ship as far as New Zealand, from where I have a number of specimens.

6. **Parajulus canadensis** Newport.

One specimen from Ottawa. Described originally from Canada, this species has also been found to occur widely in the northeastern United States.

7. **Parajulus venustus** Wood.

In the collection is a male from Alexander Bay, Thousand Islands, N.Y., taken Sept. 1, 1919. It is somewhat darker than is usual in the more typical specimens from the middle western United States, and the gonopods are also slightly variant.

*Cf. Latzel, Die Myriopoden der Ost.-Ung. Monarchis, pt. 2, 1884, p. 253, and J. Ritzema Bos, Tierische Schädlinge und Nutzlinge, 1891, p. 663, April, 1920

CHILOPODA.

8. *Linotaenia chionophila* Wood.

One specimen from Ottawa. This is one of the most common North American chilopods, abounding particularly in the northern sections. It is common in Alaska and the Pribiloff Is., etc. It is, I believe, not separable from the common European *Linotaenia acuminatus* Leach, the latter name having the priority, but it seems best not to merge the two for the present.

9. *Lithobius forficatus* Linné.

Two specimens from Ottawa. This is common in Europe as well as in North America. It occurs across the northern United States as far as the Sierra Nevada Mts.; but does not occur at present on the Pacific coast.

10. *Sonibius politus* McNeil.

An immature female from Ottawa and an adult male from Quebec City. Previously known from the north-central United States.

11. *Sigibius puritanus* Chamberlin.

One specimen from Quebec City. Common in New England.

12. *Bothropolys multidentatus* Newport.

One specimen from Alexander Bay, Thousand Islands, N.Y. A form common throughout the eastern section of the United States.

A NEW SPECIES OF TYPHLOCYBA (HEMIPTERA HEMOPTERA, TYPHLOCYBIDÆ).

BY J. R. MALLOCH,

Urbana, Ill.

The type of the species described herein is in the collection of the State Natural History Survey of Illinois.

Typhlocyba appendiculata, sp. n.

Male and Female.—Whitish testaceous; greenish or yellowish testaceous in life. Elytra with a moderately large, poorly defined brownish or fuscous spot in each of the cells basad of the cross nervures except the costal cell, and sometimes with a brown streak along the anterior margin of the clavus on its basal half. Body unmarked.

Male.—Hypopygium similar to that of *querci* Fitch, but the two elongate ventral processes are more attenuated at apices and each has a short, thorn-like lateral tooth some distance from apex which is directed laterad.

Female.—Apex of sheath of ovipositor not blackened.

Last ventral segment transverse apically.

Length 3.5 mm. to apices of elytra.

Type, male and allotype, Elizabeth, Ill., July 8, 1917. Paratype, male, Urbana, Ill., July 17, 1916, on oak. Collected by the writer.

This species closely resembles *querci* Fitch, but the spots on the elytra are larger and less clearly defined than in typical *querci*, the male hypopygium of the latter lacks the lateral tooth, and the apex of the sheath of the ovipositor in the female of *querci* is deep black.

April, 1920

DR. C. GORDON HEWITT.

It is with the most profound regret that we have to record the death of Dr. C. Gordon Hewitt, Dominion Entomologist, who died at Ottawa on February 29, 1920, of pneumonia, following a brief, but very severe attack of influenza. He had been attending the meetings of the Conservation Commission in Montreal, and was taken ill on the day of his return to Ottawa, February 20.

By his death Canada has lost one of her ablest men of science, and the Department of Agriculture a most valuable servant, through whose wide knowledge of economic zoology, farsighted judgment and great administrative ability the Dominion Entomological Service has developed to a remarkable extent in its scope and activities since his appointment as Dominion Entomologist in 1909.

An account of Dr. Hewitt's life and work, and a list of his publications, will appear in our next issue.

ENTOMOLOGICAL BRANCH DIVISION OF FOREST INSECTS.

Mr. Ralph Hopping, in charge of forest insect investigations in British Columbia for the Division of Forest Insects, is supervising control operations in the beetle-infested yellow pine of the Cold-water valley and the adjoining district west of Merritt and Canford, B.C. The work is undertaken in co-operation with the Prov. Forest Branch of British Columbia, the Dominion Forest Branch and local lumber companies. The control methods include modified logging operations, the salvage of the timber when this is feasible, and the burning of the slash. Mr. Hopping is having excellent success in organizing this important work, and we entertain great hopes that a large body of fine timber will be saved thereby.

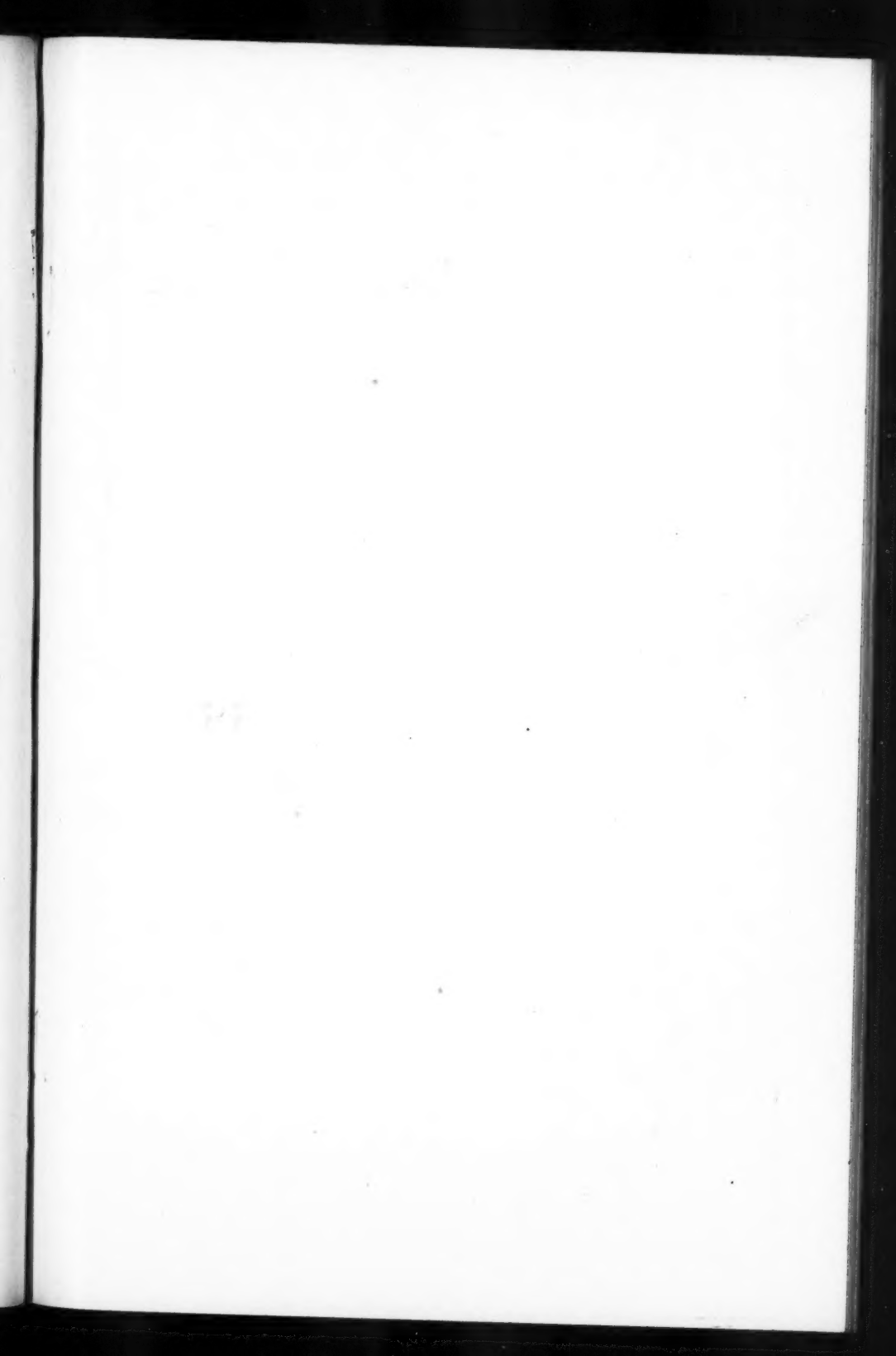
CORRECTION OF TWO GENERIC NAMES IN
COLEOPTERA AND HYMENOPTERA.

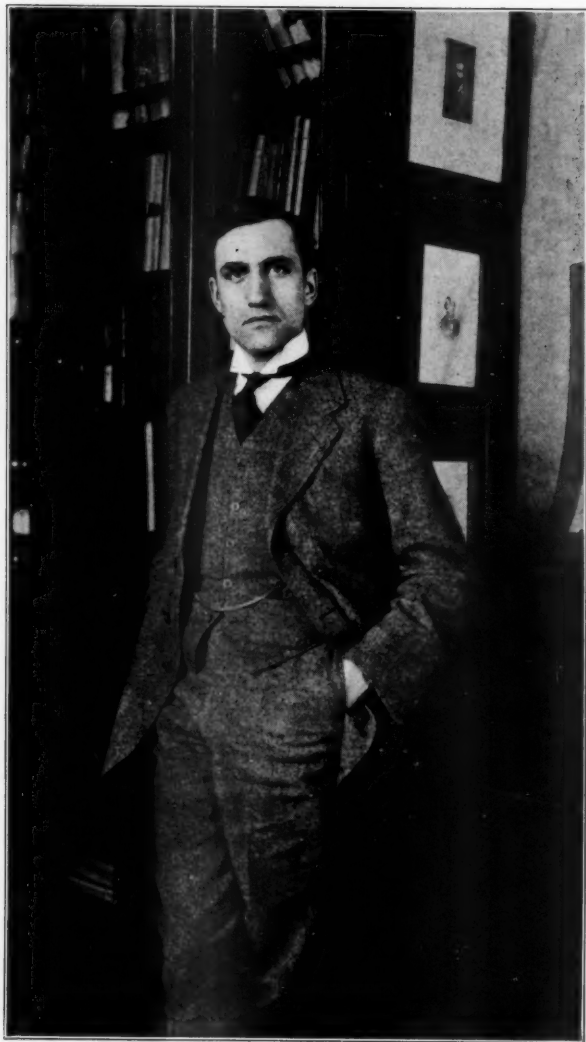
In the Proceedings of the United States National Museum, Vol. 56, p. 139, et sequa, the writer made premature use of the generic name *Coleomegilla*, its proper publication in another journal having been delayed and finally omitted. The name should be credited to Dr. T. D. A. Cockerell, who supplied the writer with the following note in September, 1918: "Mr. Timberlake asks concerning the name in which I have had in manuscript since 1906 for the genus typified by *Megilla maculata* DeGeer, the name *Megilla* being preoccupied. It is *Coleomegilla*, and if we adopt it the species becomes *Coleomegilla maculata*." (Signed) T. D. A. Cockerell.

On page 190 of the same Proceedings the writer proposed the new genus *Brethesia* for a South American Encyrtid. This name is preoccupied by *Brethesia* Schrottky, and *Brethesiella* is here proposed to take its place, with *Brethesia latifrons* as type, the two included species becoming *Brethesiella latifrons* and *abnormicornis*.

P. H. TIMBERLAKE.

Mailed April 30th, 1920.





C. Gordon Hunter,

=
V
=

s
N
E
h
in
s
o

S
a
o
E
w
t
s
I
I
o
h
I
v